USER'S MANUAL

FUTREX®-5000/XL

BODY FAT AND FITNESS COMPUTER

FUTREX INC.
130 Western Maryland Pkwy
Hagerstown, MD 21740

Version 8.4

FUTREX-5000/XL USER'S MANUAL

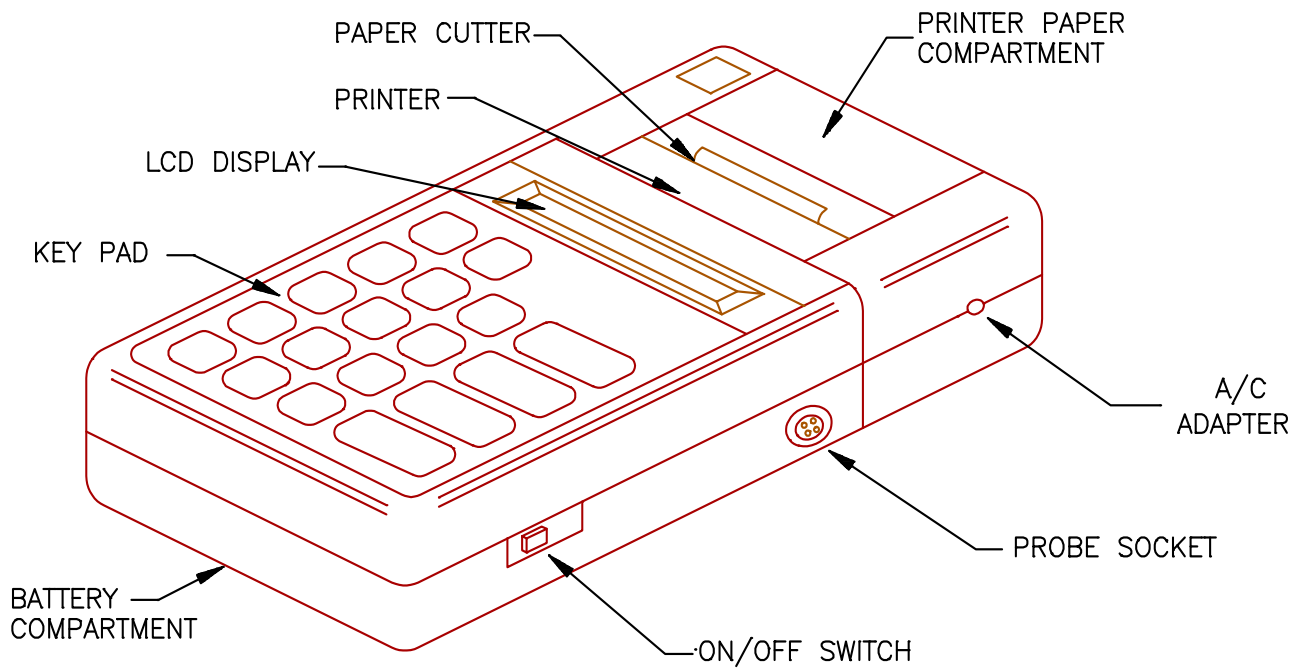This manual provides you with all the information needed to operate the FUTREX-5000/XL.

Table of Contents

Note: FUTREX CAUTIONS THE USER AND/OR INDIVIDUAL TESTED TO SEEK THE ADVICE OF A HEALTH CARE PROFESSIONAL PRIOR TO UNDERTAKING ANY NUTRITION AND/OR EXERCISE PROGRAM.

APPEARANCE AND PART NAMES

PAPER CUTTER

PRINTER PAPER
COMPARTMENT

PRINTER

LCD DISPLAY

KEY PAD

A/C
ADAPTER

PROBE SOCKET

BATTERY
COMPARTMENT

ON/OFF SWITCH

1.Main Body

2.   Optical Standard

Optical Standard

3.   Light Wand

Light
Emitting
Ring

Sensor
Window

Light
Wand
Cable

3
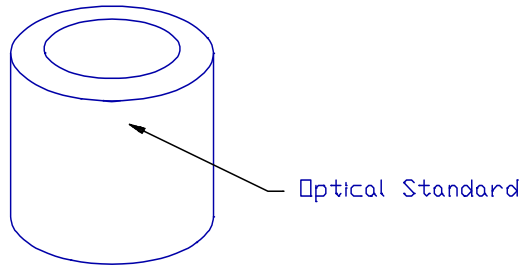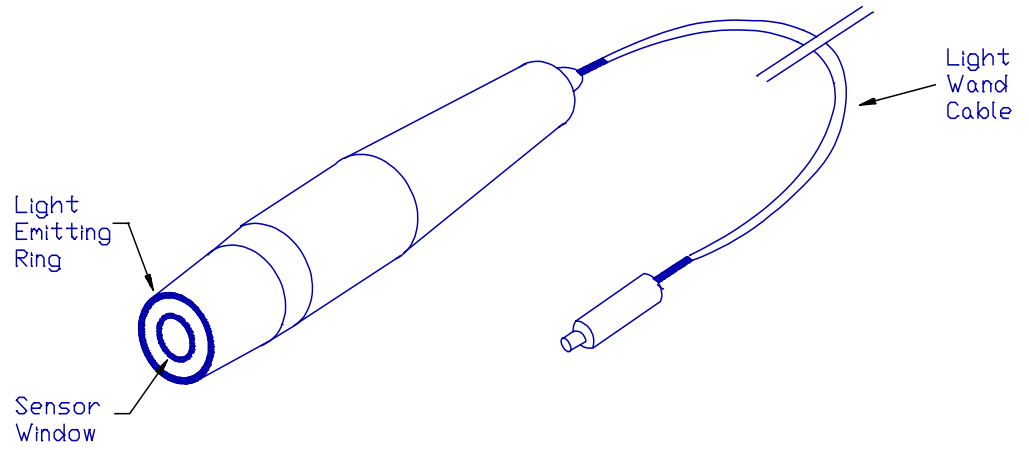
1.   **Battery Installation**

        Insert 6 1.5V "AA" size alkaline batteries into the battery compartment
        located on the rear of the Main Body. Be sure the batteries are
        oriented as indicated in the battery compartment.

        NOTE: Batteries must be alkaline type. Other types will not work.
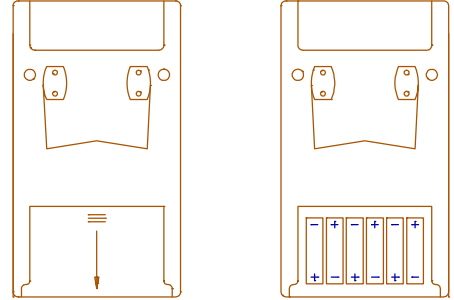
2.   **Light Wand**
        Connect the Light Wand Cable to the connector jack located on the
        right hand side of the Main Body.
        It is recommended that the Light Wand always remain attached to the
        Main Body. This will avoid possible damage to the connector.
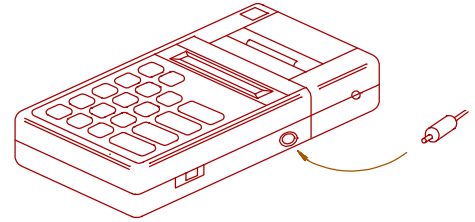
3.   **A/C Adapter**
        Connect the A/C Adapter cable to the connector jack located on the
        right hand side of the Main Body (the jack closest to the top of the unit).

Remove the clear plastic cover from the printer.

Start feeding the paper into the slit inside the Paper Roll Compartment by pressing the PAPER FEED key.
NOTE: The paper must be thermal paper and cut square prior to inserting.

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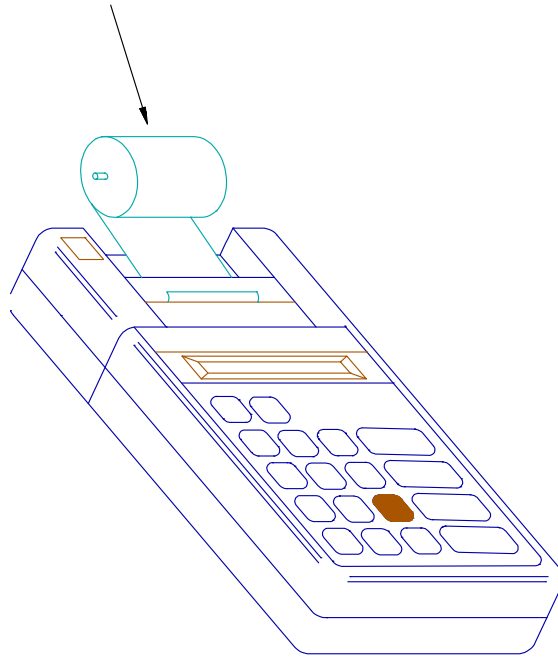
MODELS OF THE FUTREX BODY FAT AND FITNESS COMPUTER

There are two models available:

- **FUTREX-5000/XL**

    Estimates the percent body fat of Adults only (ages 18-80)

- **FUTREX-5000A/ZL**

    Estimates the percent body fat of:

    1) Adults
    2) Adolescent Children (13-17)
    3) Pre-Adolescent Children (5-12)

CAUTION: This Manual is only for use with the FUTREX-5000/XL

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TO ESTIMATE PERCENT BODY FAT: (Is date correct? See page 17.)

1)   Turn Power Switch ON.
       The display will show a software version number (e.g. 7.25) and will then start a 15 second countdown. The display will show **Sd**.

2)   Insert Light Wand into Optical Standard. Be sure the silver stripe on the Light Wand is aligned with the silver stripe from the Optical Standard.

3)   Press the **ZERO ADJUST** Key.
       The display will now show 0.0. The zero adjustment has been made.

4)   Remove Light Wand from the Optical Standard.
       Install the Light Shield on the Wand as shown in the sketch (allow the Wand to protrude from the edge of the shield by about 1/4 of an inch). The Light Shield was provided to ensure that no external light interferes with the estimation of percent body fat. Therefore, this shield should <u>always</u> be used when measuring percent body fat.

       The FUTREX-5000/XL is ready to start the body fat estimation sequence.

5)   Press **ENTER** to start the body fat estimation sequence.

6)   The FUTREX-5000/XL is normally delivered using English units (pounds and inches). The unit can be converted to accept metric units (see page 23).

7)   Enter Sex by pressing the **MALE** or **FEMALE** Key.

8)   Enter Weight in lb or kg. Press **ENTER**.

LIGHT WAND

LIGHT SHEILD

TOP OF LIGHT WAND
(EXPOSE ¼ PAST
LIGHT SHIELD)
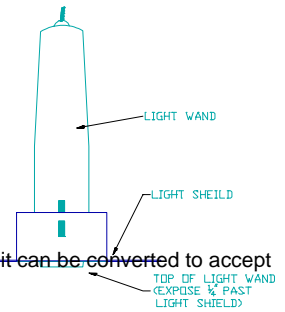
9)   Enter Body Frame by pressing the **SMALL, MEDIUM** or **LARGE** Key.

There are many methods for measuring Frame Size. Futrex does not recommend any specific method but does offer two techniques often used for determining frame size:

a)   Ankle Girth
- Measure the ankle girth at the smallest point above the ankle with the tape as tight as possible.
- Standards

	Small Frame	Medium Frame	Large Frame
Men	Less than 8 in.	8 to 9.25 in.	Greater than 9.25 in.
Women	Less than 7.5 in.	7.5 to 8.75 in.	Greater than 8.75 in.

b)   Wrist Girth
- Place your left thumb and middle finger around your right wrist and gently squeeze your fingers together.
- Small Frame - Fingers overlap
-

    Med

    NOTE: If you have long fingers, this method may underestimate your frame size.

    ium Frame - Fingers touch
- Large Frame - Fingers do not touch

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10)   Enter Height in inches or cm (whole numbers only: e.g. 68 in. is acceptable). Refer to page 23 to switch between English and Metric units. Press **ENTER**.

11)   Enter F.I.T. Value
The following procedure provides a quantitative method to determine a subject's Physical Activity Rating.

A person's F.I.T. value is a function of 3 parameters:
- Exercise Frequency - How often the exercise is performed.
- Exercise Intensity - How much energy is expanded during exercise.
- Exercise Time - How many minutes the exercise is performed during each session.

The F.I.T. value is calculated by multiplying all three parameters:
 F.I.T. = Frequency x Intensity x Time

11A)   Enter Frequency Value. Press **ENTER**.

FREQUENCY		
	5	Daily or almost daily (6 or 7 times per week)
	4	3 to 5 times per week
	3	1 or 2 times per week
	2	A few times per month
	1	Less than once per month

11B)   Enter Intensity Value. Press **ENTER**.

INTENSITY		
	5	Aerobic activities that result in sustained heavy breathing and perspiration (e.g. high impact aerobics, running, speed swimming, distance cycling).
	4	Intermittent aerobic activities that result in sustained heavy breathing and perspiration (e.g. tennis, racquet-ball, squash).
	3	Moderate aerobic activity (e.g. normal bike riding, jogging, low impact aerobics).

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| | 2 | Moderate aerobic activity (e.g. recreational volleyball, moderate speed walking). |
| | 1 | Light aerobic activity (e.g. normal walking, golfing). |

11C)   Enter Time Value. Press **ENTER**.

TIME	4	Over 30 minutes
	3	20 - 30 minutes
	2	10 - 20 minutes
	1	Under 10 minutes

NOTE:

IT IS IMPORTANT TO:	Aim the silver stripe of the Light Wand directly toward the shoulder. Keep the arm relaxed (do not permit the subject to flex his/her muscles). A relaxed biceps can be achieved by having the subject seated while resting his arm (elbow bent) on a table.
	Use the Light Shield to block the external light. Always avoid measurements under strong lights (e.g. direct sunlight) because errors may occur.

12)   Place Light Wand firmly on biceps of the dominant arm (see page 11 for locating exact estimation point).

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13)	Press **ENTER**.
The
d
i
splay will flash a decimal point following the number "1". Then the number "2" will be displayed.

> **CAUTION:**	Do not move the Light Wand while the decimal point is illuminated. The actual estimation is being made at that time.

14)	Remove the Light Wand and replace it on the same point on the biceps.

15)	Press **ENTER**.
The display will flash a decimal point following the number "2".

16)	Percent Body Fat is displayed and printed.
The FUTREX-5000/XL will also print the following information:
●	Fat Weight (lbs of body weight that is fat).
●	Lean (fat-free) body weight.
●	Total Body Water. This is the calculation of the subject's normal hydration state. The percent body water is based on research that has shown lean tissue to be composed of approximately 73% water, whereas fat contains 4 to 8% water. For example:

	Men between 6 - 24% Fat; 69 - 57% Water

	Women between 9 - 35% Fat; 67 - 50% Water

To Repeat the Measurement Sequence

Press **ENTER** and follow the steps outlined under 5-16.

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Off Message

An Off Message will appear and the FUTREX-5000/XL Automatic Power Down feature will turn the unit off if the user has not pressed any key for 6 minutes. To use the unit again, turn the Power Switch OFF and ON again.

2)   Using a 12" ruler or the scale provided on the Arm Band, measure the length between the armpit and the inside of the elbow.

3)   To mark the Measurement Point, measure halfway between the armpit and the elbow at the "belly" of the biceps muscle. (More technically stated: measure along the exterior line of the biceps halfway between the antecubital fossa and the acromion).

        To mark this measurement site, place a small line on the medial side of the spot with a yellow highlighter or pen.

4)   Place the Light Wand on the Measurement Site with one hand. Place your other hand behind the triceps, using your thumb and middle finger to hold the black foam disk around the arm to block out external light.

| **NOTE:** | It is suggested that the person being measured press the **ENTER** key with the hand not being measured. |

5)   Body Fat Estimation is described on pages 6 - 10.

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ADJUSTING THE PERCENT BODY FAT READING

The FUTREX-5000/XL has been carefully calibrated to provide body fat estimations. The calibration is traceable to the generally accepted hydrostatic procedure.

However, some users may desire to have the FUTREX-5000/XL estimations traceable to their own laboratory. For those users the following adjustment procedure is provided:

1   Turn unit on.

     1)   During countdown press **CLEAR, SELECT PROGRAM, RISKS**.

     2)   The digital display will read "A1".

                  Press ENTER.

     3)   The digital display will show the value of the optical standard.

     4)   If no change to the calibration is desired - press **CLEAR**.

     5)   If you wish to change the calibration:
                 Press **SELECT PROGRAM**, then press **RISKS**. The display will show "0.0" (if no calibration adjustment has been made) or the previously entered adjustment value.

     6)   To adjust the calibration:
                 Press the numbered key to enter the amount of adjustment. For example, if you want to decrease the instrument's estimates by 1.0% - press **1**, press **0**, then the minus sign, and then **ENTER**. All future body fat estimates will now read 1.0% lower.

     8)   Once the correct offset has been entered into the unit, press **ENTER**. The adjusted optical standard value will be displayed.

Press **CLEAR**.

ESTIMATING RELATIVE FAT DISTRIBUTION

In addition to estimating percent body fat, a relative body fat estimation on other sites of the body (e.g. quadriceps, abdominal region) can be obtained using the FUTREX-5000/XL.

1   Turn Power Switch ON.
        The display will show a software version number (e.g. 7.30) and will then start a 15 second countdown. The display will show "**Sd**".

   1)   Insert Light Wand into Optical Standard.
           The silver stripe on the Light Wand should be lined up with the silver stripe on the Optical Standard.

   2)   Press the **ZERO ADJUST** Key.
           The display will now show "0.0". The zero adjustment has been made.

   3)   Press the Number "**2**" Key.
           This will shut off the printer function.

   4)   Remove Light Wand from the Optical Standard.
           The FUTREX-5000/XL is ready to estimate relative body fat. The display will show "1".

   5)   Place the Light Wand in the Light Shield and place firmly on the body part where you want to estimate the "Relative Fat".

NOTE: It is important to:

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> ● Aim the silver stripe of the Light Wand vertically toward the upper portion of the body.
> ● Keep the body site to be estimated relaxed (do not permit subject to flex muscle area being estimated).
> ● Use the Light Shield to block the external light. **ALWAYS** avoid estimations under strong lights (e.g. direct sunlight) because errors may occur.

    ● Press **ENTER**.
The display will then show a decimal point following the number "1". The number "2" will then be
d
i
s
p
l
a
yed.

> **CAUTION:**   Do not move the Light Wand while the decimal point is illuminated. The actual estimation is being made at that time.

●Remove the Light Wand and replace it on the same site on the body. Press **ENTER**. The display will show a decimal point following the number "2".

6)   The Relative Body Fat Estimation is Displayed.

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> **NOTE:** This relative body fat is not a direct "Percentage" estimation. This value, however, can be used as a guide to monitor changes in fat distribution within the location estimated.

To Estimate Another Site or Repeat an Estimation - Place the Light Wand firmly on the particular body site and follow steps outlined in 6 and 7.
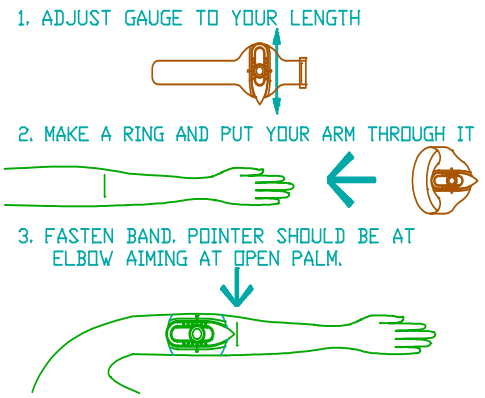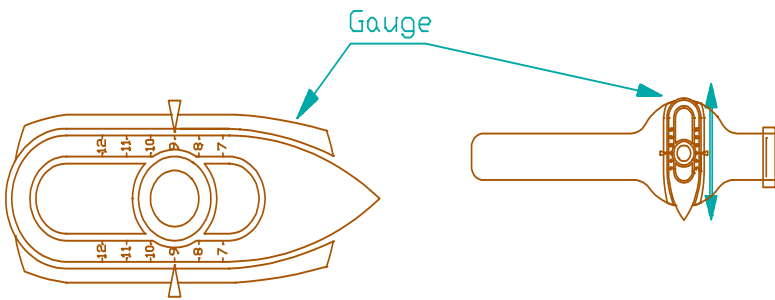
OFF Message - An OFF Message will appear and the FUTREX-5000/XL Automatic Power Down feature will turn the unit OFF if the user has not pressed any key for 6 minutes. To use the unit again, turn the Power Switch OFF and then ON again.

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1)   Purpose of the Arm Band:
   ● Locates the measurement site on the biceps.
   ● Blocks out all external light that might interfere with the measurements when self testing percent body fat.

2)   Using a 12" ruler or the scale provided on the Arm Band, measure the length between the armpit and the inside of the elbow. Extend the Arm Band so the Scale is facing up.
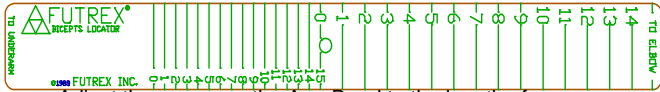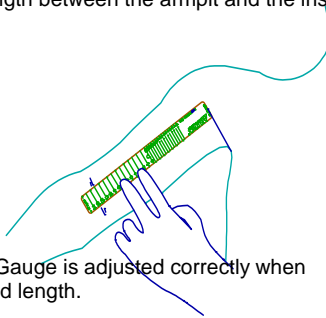
3)   Adjust the gauge on the Arm Band to the length of your upper arm. The Gauge is adjusted correctly when the white arrows on either side of the Gauge point to the correct measured length.

Gauge

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1. ADJUST GAUGE TO YOUR LENGTH

2. MAKE A RING AND PUT YOUR ARM THROUGH IT

3. FASTEN BAND. POINTER SHOULD BE AT ELBOW AIMING AT OPEN PALM.

4)   Make a ring out of the Arm Band and place your dominant arm through the center of the ring.
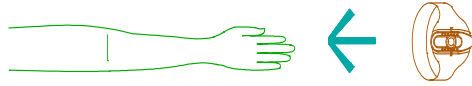
5)   Tighten the Arm   Band.

6)   To locate the proper measurement site, the Arm Band pointer should be perpendicular to the inside crease of the elbow joint (standard anatomical position/open palm).
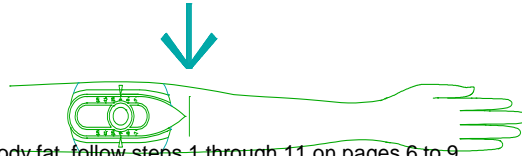
7)   To measure percent body fat, follow steps 1 through 11 on pages 6 to 9.

8)   Insert Light Wand into the center hole of the Arm Band. Make sure the Light Wand touches the skin.
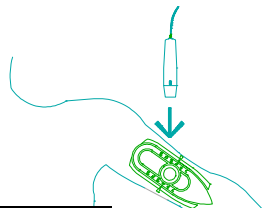
SETTING THE CORRECT DATE

9)   Measure percent body fat by following steps 13 through 16 on pages 9 and 10.

The FUTREX-5000/XL requires that the date be manually changed each day. Use the following procedure to change the date:

1)   Press **SELECT PROGRAMS** then press **DATE**. The printer will show the current setting, e.g. June 1, 1996.

2)   Printer then prompts user to change <u>month</u>. Use keypad to enter new month (i.e. "1" = January, "2" = February, ... "12" = December). If no change, just press **ENTER**.

3)   Printer prompts user to change <u>day</u>. If no change, press **ENTER**, or type in correct number and press **ENTER**.

4)   Printer prompts user to change <u>year</u>. If no change press **ENTER**, or type in correct two digits (e.g. year 2000 would be 00)

> **NOTE:**   If an invalid month, day or year is entered, the display will reset to "0", and you must enter a correct value. For example, the only valid entries for month are 1 through 12. If in error you enter 15, the display will show "0".

then **ENTER**.

PRINTOUT PROGRAMS

The FUTREX-5000/XL provides two analysis programs for <u>Adult User's only</u>:
- Fitness Analysis

- Update Analysis

FITNESS ANALYSIS

The Fitness Analysis is based upon the Metropolitan Life Insurance Tables combined with the National Institutes of Health published data on the interrelationship between body weight/fat and longevity/health risks. The program prints diet and activity suggestions to allow you to reach the recommended fat/weight levels.

This analysis provides the user with information that covers a broad spectrum of the technical literature. This is deemed necessary, because there is no "one best method" of performing a fitness analysis.

To Obtain a Fitness Analysis Printout:

1   Turn Power Switch ON
The display will show a software version number (e.g. 7.30) and will then start a 15 second countdown.

1)   Press the **CLEAR** Key to cancel the 15 second countdown.

2)   Press the **SELECT PROGRAM** Key.

NOTE: F4 must be set to "1" in the Function Mode; see page 25.

3)   <u>Either</u> press the **FITNESS** Key for final printout using the built-in printer
<u>Or</u> press **COLOR PRINTER** for final printout using an external EPSON XL300 printer*

4)   Enter Sex by pressing the **MALE** or **FEMALE** Key.

5)   Enter Height in inches or cm (whole numbers only; e.g. 68 in. is acceptable, 68.5 will not be accepted). See page 23 to switch between English and Metric units. Press **ENTER**.

6)   Enter Weight in lb. or kg. (whole numbers only). See page 23 to switch between English and Metric units. Press **ENTER**.

7)   Enter Body Frame Size by pressing **SMALL, MEDIUM** or **LARGE**. Refer to page 7 to determine size.

8)   Enter Age using the numbered keys. Press **ENTER**.

9)   Enter the Percent Body Fat obtained from the FUTREX-5000/XL (be sure to press the decimal point). Press **ENTER**.

10)   Enter Activity Level by pressing the **LIGHT, MODERATE** or **HEAVY** key. This value corresponds to your daily activity during normal working hours.

11)   Enter F.I.T. Level by entering in Frequency, Intensity and Time of your physical activity. Refer to Step 11 on page 8 to determine your F.I.T. rating.

12)   The complete Fitness Analysis is then printed.

To Estimate Percent Body Fat: turn the FUTREX-5000/XL OFF and then ON again.

Off Message

An Off Message will appear and the FUTREX-5000/XL Automatic Power Down feature will turn the unit OFF if the user has not pressed any key for 6 minutes. To use the unit again, turn the Power Switch OFF and ON again.

UPDATE ANALYSIS

This printout (for Adult Users only) allows you to compare your previous weight and percent body fat with your current values.

To Obtain an Update Analysis Printout:

1   Turn Power Switch ON.
           The display will show a software version number (e.g. 7.30) and will then start a 15 second countdown.

    1)   Press the **CLEAR** Key to cancel the 15 second countdown.

    2)   Press the **SELECT PROGRAM** Key.

    3)   Press the **UPDATE** Key.

    4)   Enter Sex by pressing the **MALE** or **FEMALE** Key.

    5)   Enter Height in inches or cm (whole numbers only: e.g. 68 in. is acceptable, 68.5 will not be accepted). Press **ENTER**.
           Refer to page 23 to switch between English and Metric units.

    6)   Enter Original Weight in lb. or kg. (whole numbers only). This value refers to the weight of the subject prior to starting any weight gain or reduction program. Press **ENTER**. Refer to page 23 to switch between English and Metric units.

    7)   Enter Current Weight in lb. or kg. Press **ENTER**.

    8)   Enter Body Frame by pressing the **SMALL, MEDIUM** or **LARGE** key. Refer to step 9 on page 7 to determine frame size.

    9)   Enter Age using the numbered keys. Press **ENTER**.

10)   Enter Original Percent Body Fat obtained from the FUTREX-5000/XL prior to starting any body fat gain/loss program (be sure to press the decimal point). Press **ENTER**.

11)   Enter Current Percent Body Fat. This is the percentage value recently obtained by the FUTREX-5000/XL. Press **ENTER**.

12)   Enter Activity Level by pressing the **LIGHT, MODERATE** or **HEAVY** key. This value corresponds to your daily activity during normal working hours.

13)   Enter F.I.T. by entering in values for Frequency, Intensity and Time of physical activity. Refer to step 11 on page 8 to determine your F.I.T. rating.

14)   Enter Number of Weeks between current and original body fat estimation.

15)   The complete Update Analysis will be printed.

To Print Another Update Analysis: follow steps 3 through 16.

To Estimate Percent Body Fat: turn the FUTREX-5000/XL OFF and then ON again.

OFF Message

An Off Message will appear and the FUTREX-5000/XL Automatic Power Down feature will turn the unit OFF if the user has not pressed any key for 6 minutes. To use the unit again, turn the Power Switch OFF and then ON again.

The FUTREX-5000/XL can directly communicate with an external printer without need for any external computer using Futrex's unique full color fitness forms. The following is required if you desire to use this feature:

- Preprinted Color Forms - This 4 page form provides extensive data for your clients.
- Printer - Epson Model LX-300
- RS-232 Printer Serial Cable - To communicate from the FUTREX-5000/XL to the Epson Printer.

This printing function is performed as follows: (**NOTE**: F4 must have been set to "0"; see page 25).

1)   Turn on both the printer and FUTREX-5000/XL. Wait for countdown to finish or press **CLEAR**. The RS-232 serial cable must be attached between the units.

2)   Press SELECT PROGRAMS, then COLOR PRINTER. The FUTREX-5000/XL internal printer will display:
"Use Previous Data; 1 = YES, 2 = NO". If you type in "NO" (i.e. "2"), follow the Fitness Analysis Procedure described on page 19 starting with Step 5.

3)   If "YES" (i.e. "1") was typed in, the FUTREX-5000/XL's will use the data from the last person that was measured and the instrument's printer will ask:

- "Enter Activity Level" - This is the amount of daily physical activity the person does during normal work environment. It does not include any exercise program the person does. Enter either LIGHT (e.g. office work), MODERATE (e.g. someone delivering mail), or HEAVY (e.g. a ditch digger).

4)   Enter "Body described in (page 19, items

CAUTION:	Color Forms must be in printer.

Frame" and "Activity Level" as the Fitness Analysis procedure 8 and 11).

| NOTE: | Printer must be set to 2400 baud rate. If a malfunction occurs (e.g. paper jam), you must turn off both the printer and the FUTREX-5000/XL before restarting. |

FUNCTION MODE

The Function Mode provides the user with 3 program options:

- Selection of Metric or English units.
- Selection of a Calorie Limit Mode.
- Use of Dotson-Davis Equations.

To Enter into the Function Mode:

1   Turn Power Switch ON.

    1)   Press the **RISKS** Key during the 15 second countdown.

    2)   The letter "F" will appear on the screen.
        Now follow the appropriate instructions for the Function you want to change.

F1 - Selection of English or Metric Units

The subject's height and weight values can be printed in either English (lbs/in) or Metric)kg/cm) units.
After entering the Function Mode:

    a)   Press 1

        The display will show either "F1 0" or "F1 1".

        If "F1 0" is displayed, English Units are being used (lbs/in).

        If "F1 1" is displayed, Metric Units are being used (kg/cm).

b)   To Change Between Units

Press either **0** or **1** and the display will show the change.

c)   Press **ENTER** if this is correct.

d)   Press **ENTER** a second time. If you fail to press **ENTER** a second time, the FUTREX-5000/XL will continue to use the original setting stored in the FUTREX-5000/XL.

e)   To Exit the Function Mode, turn the FUTREX-5000/XL OFF.

F2 - Selection Calorie Limit Mode

The Fitness Analysis Program can be operated in two different calorie modes. The first mode allows the FUTREX-5000/XL to calculate the subject's daily caloric intake. The second mode allows the subject to enter his/her daily caloric intake value.

After entering the Function Mode:

1   Press **2**

The display will show either "F2 0" or F2 1".

If "F2 0" is displayed, then the unit will automatically calculate the subject's daily caloric intake.

If "F2 1" is displayed, the user will be asked to enter a specific calorie intake value.

a)   To Change Between Modes:
Press either **0** or **1** and the display will show the change.

b)   Press **ENTER** if this is correct.

c)   To Exit the Function Mode, turn the FUTREX-5000/XL OFF.

F3 - Use of Dotson-Davis Equations

After entering the Function Mode:

1   Press **3**.

> The display will show either "F3 0" or "F3 1".
>
> If "F3 0" is displayed, the Dotson-Davis Equation will be used.
>
> If "F3 1" is displayed, the Dotson-Davis Equation will be omitted from the Body Fat Estimation Program.

    a)   To Change Between Equations:
           Press either **0** or **1** and the display will show the change. Press **ENTER** if this is the correct change.

    b)   To Exit the Function Mode, turn the unit OFF.

F4 - Color Printer Selection

After entering the Function Mode:

    a)   Press **4**
           If "0" is displayed, the unit is set to print using the Color Forms.

           If "1" is displayed, unit is set to print Fitness Analysis on plain paper.

    b)   To change, press "0" or "1". Press **ENTER** to save the change.

    c)   To Exit the Function Mode, turn the unit OFF.

F8 - Data Stream

This function allows the FUTREX-5000XL measured data to be sent to an external PC computer.
- If F8 is "0", no data is being sent.
- If f8 is "1", all measured data will be sent to the external computer.

F5 and F7 are not used, but they must be set to "0" or the instrument will not function properly. F6 is not used, but must be set to "1" or the instrument will not function properly.

PROBLEM	PROBABLE CAUSE	CORRECTIVE MEASURES
1) Display shows "LOBAT"	Batteries are low	a) Replace batteries (Refer to page 3).
2) Display shows "1999.9" or "-1999.99"	a) Bad connection between Light Wand and Probe Socket b) Too much/too little light	a) Be sure the Light Wand is properly inserted into the Probe Socket. b) Be sure the Light Wand is properly seated in the Optical Standard when Zero Adjusting.
3) Bad Repeatability	a) Inconsistent measurement technique	a) Make sure you are applying enough pressure between the Light Wand and the subject's arm. b) The silver line on the Light Wand must be aligned with the line on the Optical Standard when Zero Adjusting. c) When taking a measurement, the silver line on the Light Wand must point toward the subject's shoulder. d) Use the Light Shield to block the external light. <u>Always</u> avoid measurements under strong lights (e.g. direct sunlight) because errors may occur.

PROBLEM	PROBABLE CAUSE	CORRECTIVE MEASURES
4) Unusually high body fat estimates (40-50%)	a) Too much light present during the measurement.	a) Do not lift the Light Wand from the subject's biceps until a "2" appears on the screen during the first estimation or the printer starts printing after the second estimation. b) Use the Light Shield to block the external light. Always avoid measurements under strong lights (e.g. direct sunlight) because errors may occur.
5) Printer Stops	a) Low batteries. b) Bad battery contact. c) Bad AC connection.	a) Replace batteries (see page 3). b) Remove batteries and clean tabs with isopropyl alcohol (rubbing alcohol). c) Unplug the AC Adapter from the wall socket and from the unit. Clean the adapter contact with isopropyl alcohol (rubbing alcohol).

PROBLEM	PROBABLE CAUSE	CORRECTIVE EstimateS
6) Print is too light or does not print.	a) Printing on wrong side of the paper. b) Wrong type of printer paper. c) Print head is dirty.	a) Make sure paper is inserted to print on the "shiny" side of the paper. b) Paper must be thermal paper. c) Clean the print head by carefully removing the Paper Cutter. Insert a clean piece of rough paper (a typical business card is ideal) between the print head and rear paper roller. CAUTION: Do not bend the print head; pressure on the rear paper roller will allow the card to be inserted.
7) Printer prints black lines.	a) Low batteries. b) Bad battery connections.	a) Replace batteries (Refer to page 3). b) Remove batteries and clean tabs with isopropyl alcohol (rubbing alcohol).

● **FOR MORE INFORMATION OR ASSISTANCE, CALL 1-301-733-9368**

1)   MEASUREMENT TECHNIQUE
    ● Estimation Principle: Near Infrared Interactance Technique based on technology from the United States Department of Agriculture.
    ● Estimation Range: 2.5% to 50%

2)   PRINTER OUTPUT
    ● Fitness Analysis
    ● Update Analysis
    ● Color Printer
    ● Physical Rating

3)   SERIAL PORT: Bi-directional synchronous 2400 baud, 8 bit, 1 stop; +/-9 volt nominal

4)   USER "ID" SEQUENCE: 1 to 32,000 auto-incremented; not user resettable

5)   POWER SOURCE: Six AA 1.5V alkaline batteries

6)   DIMENSIONS: Main Body - 4.7 x 9.5 x 2.2 inches
    Light Wand - 1.2(dia.) x 4.5 (length) inches

7)   WEIGHT: 2 lbs. (total)

8)   ACCESSORIES:

Optical Standard	x1
Arm Band	x1
Thermal Printer Paper(rolls)	x5 (one roll is supplied installed in the instrument's printer. Paper must be thermal paper type)
"AA" battery	x6
User's Manual	x1
Light Shield	x1

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Summary:

Key Name

ZERO ADJUST	:	When the Display shows "Sd", insert the probe firmly into the "Optical Standard", and press this key to automatically calibrate the unit.
SELECT PROGRAM:		This key is pressed prior to the Program Keys in order to select one of the "Computation Programs".
FITNESS	:	One of the "Computation Programs". This key selects the "Fitness Analysis" program.
UPDATE	:	One of the "Computation Programs". This key selects the "Update Analysis" program.
COLOR PRINTER	:	Activates RS-232 Serial Port to send data to be printed onto the four page preprinted color form.
SMALL MEDIUM LARGE	:	These keys are used to enter your body frame size in the "Fitness Analysis" or the "Update Analysis" programs. Press the proper key when the "Enter body frame" message appears on the printer.
MALE FEMALE	:	These keys are used to enter your sex into the "Fitness Analysis" or "Update Analysis" programs. Press the appropriate key when the "Enter sex" message appears on the printer.
CLEAR	:	This key cancels incorrectly entered numbers.
ENTER	:	This key is used to store numbers that have been entered. It is also used to start the body fat estimation sequence.
PAPER FEED	:	For feeding paper into the printer.
RISKS	:	Allows adjustment of the instrument's calibration.
DATE	:	Changes internally stored date stamp

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